



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,196	08/30/2001	Charles E. May	01-146	8500

7590

01/17/2003

Sandeep Jaggi
c/o Mark Salvatore
LSI Logic Corporation, M/S D-106
1551 McCarthy Boulevard
Milpitas, CA 95035

EXAMINER

UMEZ ERONINI, LYNETTE T

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 01/17/2003

2

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/943,196	Applicant(s) MAY, CHARLES E.	
	Examiner Lynette T. Umez-Eronini	Art Unit 1765	

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____ .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 9-11 and 15-17 is/are objected to.
- 8) ☒ Claim(s) 18-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . | 6) <input type="checkbox"/> Other: ____ . |

DETAILED ACTION

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-17, drawn to polishing method, classified in class 438, subclass 692.
 - II. Claims 18-20, drawn to polishing (apparatus) arrangement, classified in class 156, subclass 345.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as one that does not require using a non-aqueous solvent.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Art Unit: 1765

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Peter Scott on December 31, 2002 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections – 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 2, 3, 4, 7, 8, 12, 13, and 14 rejected under 35 U.S.C. 102(a) as being anticipated by Ri et al. (English translation of JP 2001139935 A).

Ri teaches a method of fabricating a semiconductor wafer. The method comprises:

(a) polishing a semiconductor wafer with a polishing pad [0017, lines 11-13 and 17]; and

b) disposing a volume of a nonaqueous solvent (DMSO) onto said semiconductor wafer [0017, lines 11-13] and [0015, lines 1-6], as in claims 1 and 8; and

Art Unit: 1765

(a) subjecting a front side of said semiconductor wafer to chemical mechanical polishing [0008, lines 1-5]; and

b) disposing a volume of a nonaqueous solvent (DMSO) onto said front side of said semiconductor wafer [0017, lines 11-13]; [0015, lines 1-6]; and [0008, lines 1-5], as in claims 12 and 14.

Ri further teaches:

disposing a volume of aqueous slurry containing an abrasive material onto said semiconductor wafer [0001, lines 11-13], as claim 2;

polishing pad is in contact with said semiconductor wafer when said nonaqueous solvent is disposed onto said semiconductor wafer [0017, lines 11-17], as in claim 3;

preparing an $\text{Al}_2\text{O}_3/\text{SiO}_2$ slurry in a polyethylene container [0017, lines 4-11] and adding various additives such as OH, DMSO, and NH_2 to the polishing slurry [0015, lines 1-7], which reads on,

(c) mixing said aqueous slurry and said nonaqueous solvent in a mixing unit. Since Ri aqueous slurry and nonaqueous solvent is the same as that of the claimed invention, then using Ri's method of preparing a polishing slurry would inherently create an aqueous slurry/nonaqueous solvent mixture prior to being disposed onto said semiconductor wafer, as in claim 4;

said nonaqueous solvent includes an ammine, as in claims 7 and 13.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ri (JP '935 A) as applied to claim 1 above, and further in view of Kimura (US. 5,869,392)

Ri differs in failing to teach increasing the weight % of said nonaqueous solvent in said aqueous slurry/aqueous solvent mixture, in claims 5 and 6.

Kimura teaches in the CMP process, chemical polishing variables include the kind, pH, and composition of solvent; and mechanical polishing variables include the kind and concentration of slurry, the kind of polishing cloth, the pressure applied to abrasive, and the rotational speed of a carrier (wafer) (column 4, lines 11-16).

It is the examiner's position that it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to modify Ri by using and increasing Kimura's solvent composition because Kimura serves as evidence that the composition of a solvent serves as a so-called "result effective variable." It has been held that the discovery of an optimum value for result effective variables is within the purview of routine experimentation by the person of ordinary skill in the art. In re Boesch, 617 F.2d 272,276,205 USPQ 215, 219 (CCPA 1980).

Claim Objections

9. Claims 9 and 15 are objected to because of the following informalities: On lines 2 of claims 9 and 15, "Nnpropanalimide" is incorrectly written. Appropriate correction is required.

10. Claims 9-11 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 703-306-9074. The examiner is normally unavailable reached on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-972-9310 for regular communications and 703-972-9311 for After Final communications.

Lynette T. Umez-Eronini

ltue

January 13, 2003